Taketoshi HINODE*: **Desmids from the northern district of Tokushima Prefecture** (3)

日出武敏*: 徳島県北部地方のチリモ類 (3)

(Pls. XIV～XV)

147. **Xanthidium** *antilopaeum* (Bréb.) Kütz. (Fig. 7-1) Long. sine spin. 46–59μ; lat. sine spin. 49–55μ, cum spin. 69–89μ; isthm. 10, crass. 24–30μ. Hab. 2.

148. **Arthrodesmus** *convergens* Ehrenb. (Fig. 7-2). Long. 38μ; lat. sine spin. 48μ, cum spin. 77μ; isthm 14μ; long. spin. 15μ. Hab. 2.

149. *A. incus* (Bréb.) Hass. var. *malaccensis* Bernard (Fig. 6-19) Long. 16μ; lat. sine spin. 14μ, cum spin. 26μ; isthm. 5μ. Hab. 11.

150. **Staurastrum** *alternans* Bréb. Long. 19μ; lat. 19μ; isthm. 6μ. Hab. 11.

151. *St. asterias* Nygaard (Fig. 9-5) Long. 22μ; lat cum proc. 30μ; isthm. 7μ, Hab. 6, 11.

The specimens have six or five radiations. This species is the nearest to *St. pinnatum* Turn. but differs in lacking of the accessory processes on both sides of the basal part of each process.

152. *St. cerastes* Lund. var. *coronatum* Krieg. (Fig. 7-14) Long. 34μ; lat. cum proc. 40μ; isthm. 7μ. Hab. 3.

153. ———— var. **delicatissimum** Hinode var. nov. (Fig. 7-15) Var. minor, processibus angustissimis paulo elongatis, parte basali semicellularum angustiore, granulis nulli. Long 31μ: lat. cum proc. 44μ; isthm. 8μ. Hab. 3.

This is a small and delicate variety, with very narrow and elongate processes, comparable with var. *pulchrum* Scott & Grönbl. (Acta Soc. Sci. Fenn. n. ser. **2**: 33, 1957).

154. *St. connatum* (Lund.) Roy & Biss. Long. sine spin. 19μ, cum spin. 28μ; lat. sine spin. 18μ, cum spin. 22μ; isthm. 7μ. Hab. 10.

155. *St. contectum* Turn. var. *inevolutum* Turn. (Fig. 9-6) Long. 25μ; lat. cum proc. 28μ; isthm. 9μ. Hab. 3, 11.

156. *St. crenulatum* (Näg.) Delp. (Fig. 7-13) Long. 26μ; lat. cum proc. 35μ; isthm. 8μ. Hab. 3, 11.

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* 徳島県博物館. Museum of Tokushima Prefecture, Tokushima, Japan.

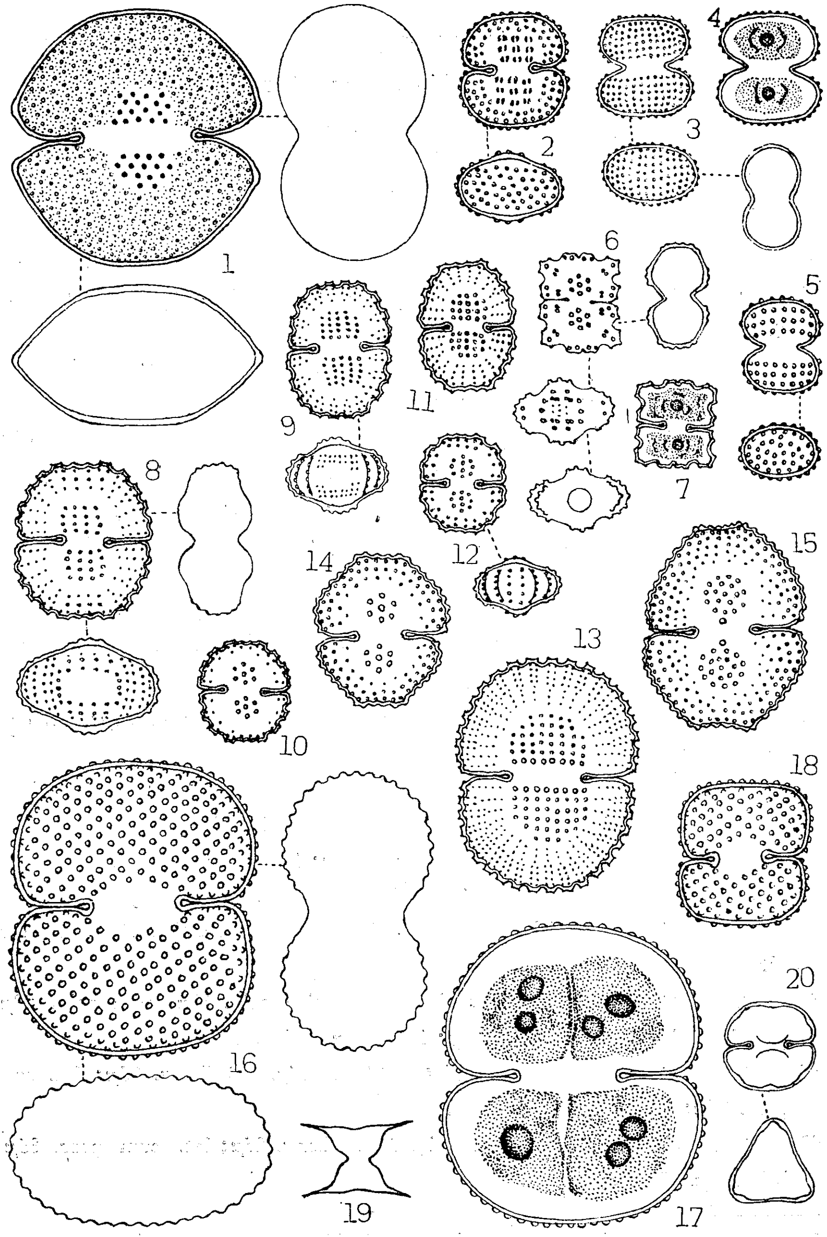

Fig. 6

157. *St. cuspidatum* Bréb. Long. 22μ; lat. sine spin. 16μ, cum spin. 24μ; isthm. 5μ. Hab. 3.

158. ——— var. *divergens* Nordst. Long. 22μ; lat. cum spin. 20μ; isthm 6μ. Hab. 3.

159. *St. cyclacanthum* West & West var. *armigerum* Scott & Prescott (Fig. 8-5) Long. 25-28μ. lat. cum proc. 34-41μ; isthm. 8-9μ. Hab. 3, 11.

This is a little depressed variety; the ventral margins of semicells are broadly rounded and furnished with two small spines at each angle; processes are somewhat elongate and sparsely nodulose, and at their tops tipped with 4 rather longer spines.

160. *St. dejectum* Bréb. (Fig. 7-7) Long. 19μ; lat. sine spin. 16μ, cum spin. 19μ; isthm. 6μ. Hab. 3.

161. *St. depressiceps* Scott & Grönbl. var. *planiceps.* Scott & Grönbl. (Fig. 8-7) Long. sine proc, 10μ, cum proc. 31μ; lat. cum proc. 31μ; isthm. 5μ. crass. 9μ. Hab. 3.

This is a tiny and delicate alga; the whole appearence has some resemblance to *St. columbetoides* West & West, but can be easily distinguished by the delicately spined basal part of semicell and the shape from vertical view.

162. *St. dickiei* Ralfs Long. 27μ; lat. sine spin. 31μ, cum spin. 39μ; isthm. 7μ. Hab. 2, 3.

163. *St. dilatatum* Ehrenb. (Fig. 7-4) Long. 31μ; lat. 31μ. isthm. 11μ. Hab. 3.

164. *St. disputatum* West & West var. *sinense* (Lütkem.) West & West (Fig. 7-5) Long. 20μ; lat. 24μ; isthm. 8μ. Hab. 3.

165. *St. distentum* Wolle (Fig. 8-12) Long. 26μ; lat. cum proc. 34μ; isthm. 10μ. Hab. 3.

In this district this is a very rare desmid. On both sides near the base of each process upwardly directed small spines are furnished with, and at the basal part of semicells also small spines are seen.

Fig. 6. 1. *Cosmarium lundellii* Delp. var. *japonicum* Hinode. 2. *C. punctulatum* Bréb. var. *seriatum* Krieg. 3, 4. *C. hians* Borge. 5. *C. orthostichum* Lund. var. *pumilum* Lund. 6, 7. *C. subnobile* Hinode. 8. *C. formosulum* Hoff. 9. *C. costatum* Nordst. 10. *C. subcostatum* Nordst. 11. *C subcrenatum* Hantzsch. 12. *C. subprotumidum* Nordst. 13. *C. subspeciosum* Nordst. 14. *C. sportella* Bréb. 15. *C. turpinii* Bréb. var. *eximium* West. & West. 16, 17. *C. dentiferum* Corda. 18. *C. pseudobroomei* Wolle. 19. *Arthrodesmus incus* (Bréb.) Hass. var. *malaccensis* Bernard. 20. *Staurastrum retusum* Turn. var. *nitidulum* Hinode all, ×550.

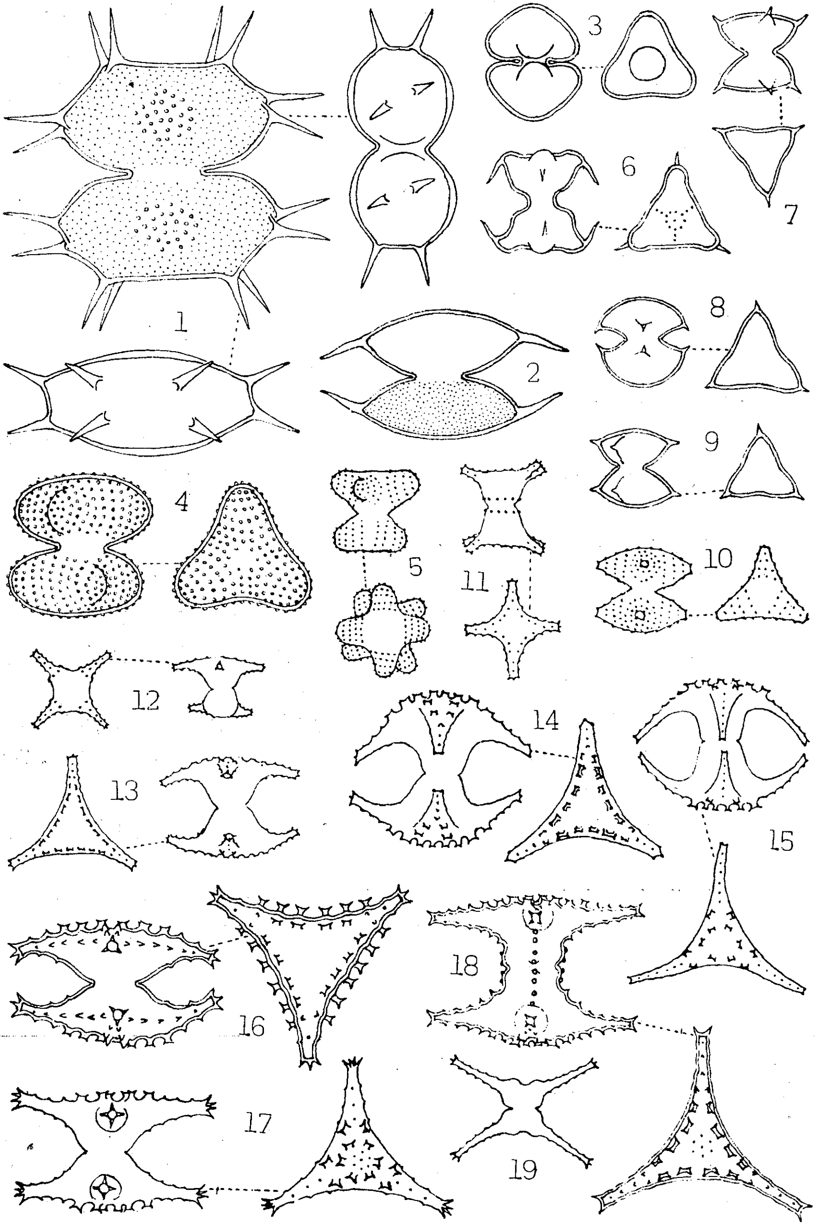

Fig. 7

166. *St. excavatum* West & West (Fig. 8-8; Pl. XV, fig. 8) Long. 19μ; lat. cum proc. 50μ; isthm. 8μ. Hab. 3.

167. *St. floriferum* West & West (Fig. 7-17) Long. 32μ; lat. cum proc. 46μ; isthm. 9μ. Hab. 2.

168. *St. forficulatum* Lund. (Fig. 9—4) Long. sine spin. 26μ, cum spin. 40μ; lat. cum spin. 34μ; isthm. 10μ. Hab. 3.

169. *St. gladiosum* Turn. (Pl. XV. fig. 10). Long. sine spin. 31μ, cum spin. 41μ; lat. sine spin. 28μ, cum spin. 43μ; isthm. 10μ. Hab. 2, 11.

170. *St. gracile* Ralfs var. *tenuissimum* Boldt (Fig. 7-12) Long. 18μ; lat. cum proc. 24μ; isthm. 5μ. Hab. 3.

171. *St. hexacerum* (Ehrenb.) Wittr. (Fig. 7-10) Long. 22μ; lat. 23μ; isthm. 6μ. Hab. 4.

Rather small form, and rarely found.

172. *St. javanicum* (Nordst.) Turn. (Fig. 8-1 Pl. XV, fig. 9) Long. 50μ; lat. cum proc. 68μ; isthm. 12μ. Hab. 3.

Arrangement of the verrucae on apices is nearest to var. *maximum* Bernard, but the processes are much shorter.

173. *St. lanceolatum* Arch. (Fig. 7-8) Long. 24μ; lat. 22μ; isthm. 6μ. Hab. 1.3.

174. *St. leptocladum* Nordst. var. *cornutum* Wille (Fig. 8-9) Long. sine spin. 34-37μ, cum spin. 40-44μ; lat. cum proc. 77-90μ; isthm. 7-10μ; crass. 16μ. Hab. 3.

175. *St. lunatum* Ralfs. Long. 26μ; lat. sine spin. 26μ, cum spin. 28μ; isthm. 8μ. Hab. 3, 11.

176. *St. monticulosum* Bréb. var. *bidens* West & West (Fig. 8-6) Long. sine spin. 25μ, lat. cum spin. 26μ; isthm. 9μ. Hab. 3.

Semicells are almost quadrangular, from the vertical view also quadrangular, the two verrucae on each angle are somewhat contorted in same direction.

177. *St. mucronatum* Ralfs (Fig. 7-9) Long. 18μ; lat. sine spin. 19μ, cum spin.

Fig. 7 1. *Xanthidium antilopaem* (Bréb.) Kütz. 2. *Arthrodesmus convergens* Ehrenb. 3. *Staurastrum orbiculare* var. *ralfsii* West & West. 4. *St. dilatatum* Ehrenb. 5. *St. disputatum* West & West var. *sinense* (Lütkem.) West & West. 6. *St. unicorne* Turn. 7. *St. dejectum* Bréb. 8. *St. lanceolatum* Arch. 9. *St. mucronatum* Ralfs. 10. *St. hexacerum* (Ehrenb.) Wittr. 11. *St. zonatum* Börges. 12. *St. gracile* Ralfs var. *tenuissimum* Boldt. 13. *St. crenulatum* (Näg.) Delp. 14. *St. cerastes* Lund. var. *coronatum* Krieg. 15. *St. cerastes* Lund. var. *delicatissimum* Hinode. 16. *St. vestitum* Ralfs. 17. *St. floriferum* West & West. 18. *St. submanfeldtii* West & West var. *elegans* West & West. 19. *St. tetracerum* Ralfs var. *cameloides* Florin all, ×550.

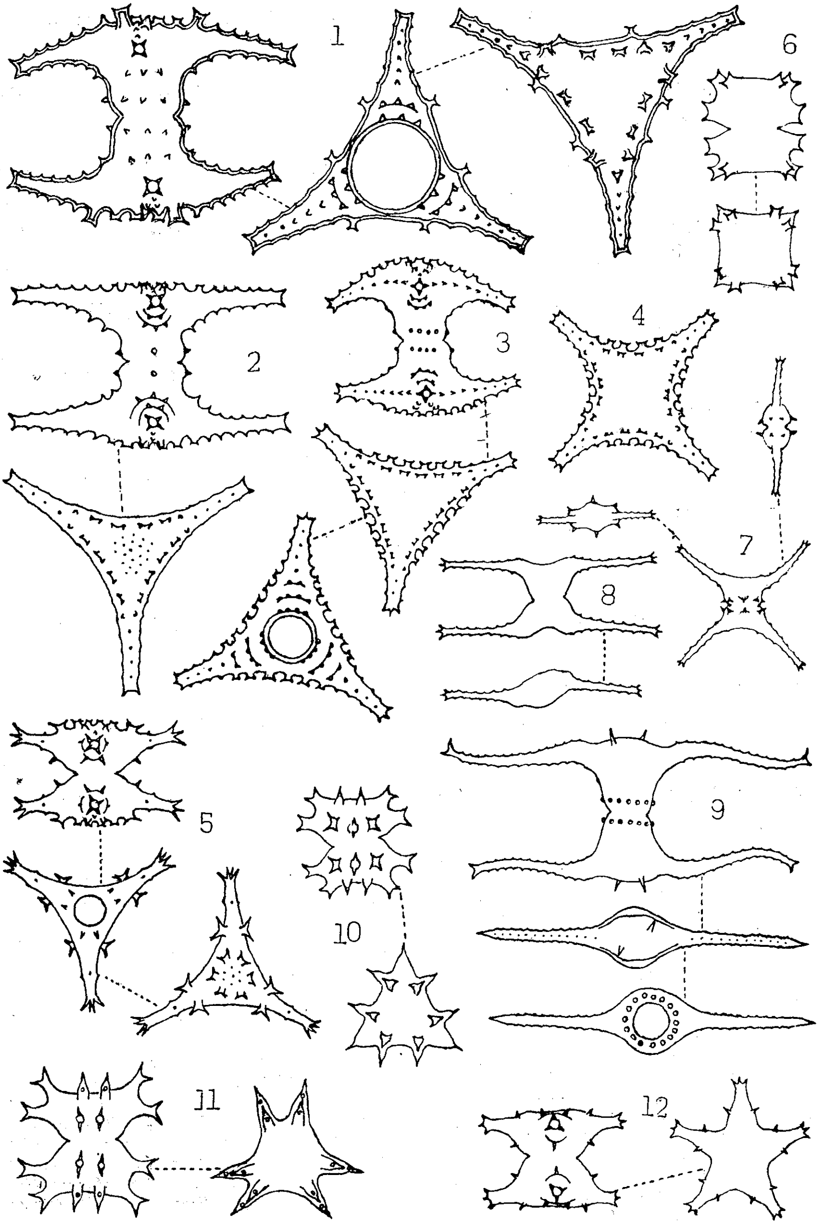

Fig. 8

24μ; isthm. 5μ. Hab. 3.

178. *St. muticum* Bréb. f. *minor* Rabenh. Long. 20μ; lat. 16μ; isthm 5μ. Hab. 1, 3.

179. *St. orbiculare* Ralfs var. *deppressum* Roy & Biss. Long. 21μ; lat. 22μ; isthm. 6μ. Hab. 3.

180. ——— var. *ralfsii* West & West (Fig. 7–3). Long. 28μ; lat. 25μ; isthm. 7μ. Hab. 3.

181. *St. pinnatum* Turn. var. *subpinnatum* (Schmidle) West & West (Fig. 9–2). Long. 22μ; lat. cum proc. 28μ; isthm. 8μ. Hab. 11.

The specimens here are 5-radiate and very small and in the whole appearence it rather approaches to var. *reductum* Krieg.

182. ——— ——— f. *robusta* Krieg. (Fig. 9–3) Long. 43μ; lat. 53μ; isthm. 10μ. Hab. 3.

183. *St. pseudosebaldi* Wille (Figs. 8–3∼4) Long. 35μ; lat cum proc. 48μ; isthm. 10μ. Hab. 3, 11.

184. *St. quadricornutum* Roy & Biss. (Fig. 8–11) Long. sine spin. 25μ, cum spin. 35μ; lat. sine spin. 22μ, cum spin. 37μ; isthm. 10. Hab. 3, 10, 11.

185. *St. retusum* Turn. var. *nitidulum* Hinode (Fig. 6–20) Long. 23μ; lat. 23μ; isthm. 6μ. Hab. 11.

186. *St. rhynchoceps* Krieg. var. *ornatum* Hinode (Fig. 9–1) Long. 53μ; lat. 47μ; isthm. 16μ. Hab. 2, 3.

The specimens of this district are a little larger and more elaborate than those of southern district of Tokushima Prefecture.

187. *St. sebaldi* Reinsch var. *ornatum* Nordst. (Fig. 8–2) Long. 39–40μ; lat. cum proc. 55–60μ; isthm. 9–10μ. Hab. 2.

188. *St. senarium* (Ralfs) Bréb (Fig. 8–10). Long. sine proc. 24μ, cum proc. 30μ; lat. sine proc. 16μ, cum proc. 26μ; isthm. 9μ. Hab. 3.

189. *St. submanfeldtii* West & West var. *elegans* West & West (Fig. 7–18) Long. 36–37μ; lat. cum proc. 46–52μ; isthm. 8–9μ. Hab. 3.

190. *St. tetracerum* Ralfs Long. cum proc. 21μ; lat cum proc. 21μ; isthm. 5μ.

Fig. 8. 1. *Staurastrum javanicum* (Nordst.) Turn. 2. *St. sebaldi* Reinsch var. *ornatum* Nordst. 3, 4. *St. pseudosebaldi* Wille. 5. *St. cyclacanthum* West and West var. *armigerum* Scott & Prescott 6. *St. monticulosum* Bréb. var. *bidens* G. S. West. 7. *St. depressiceps* Scott & Grönbl. var. *planiceps* Scott & Grönbl. 8. *St. excavatum* West & West. 9. *St. leptocladum* Nordst. var. *cornutum* Wille. 10. *St. senarium* (Ralfs) Bréb. 11. *St. quadricornutum* Roy & Biss. 12. *St. distentum* Wolle all, ×550.

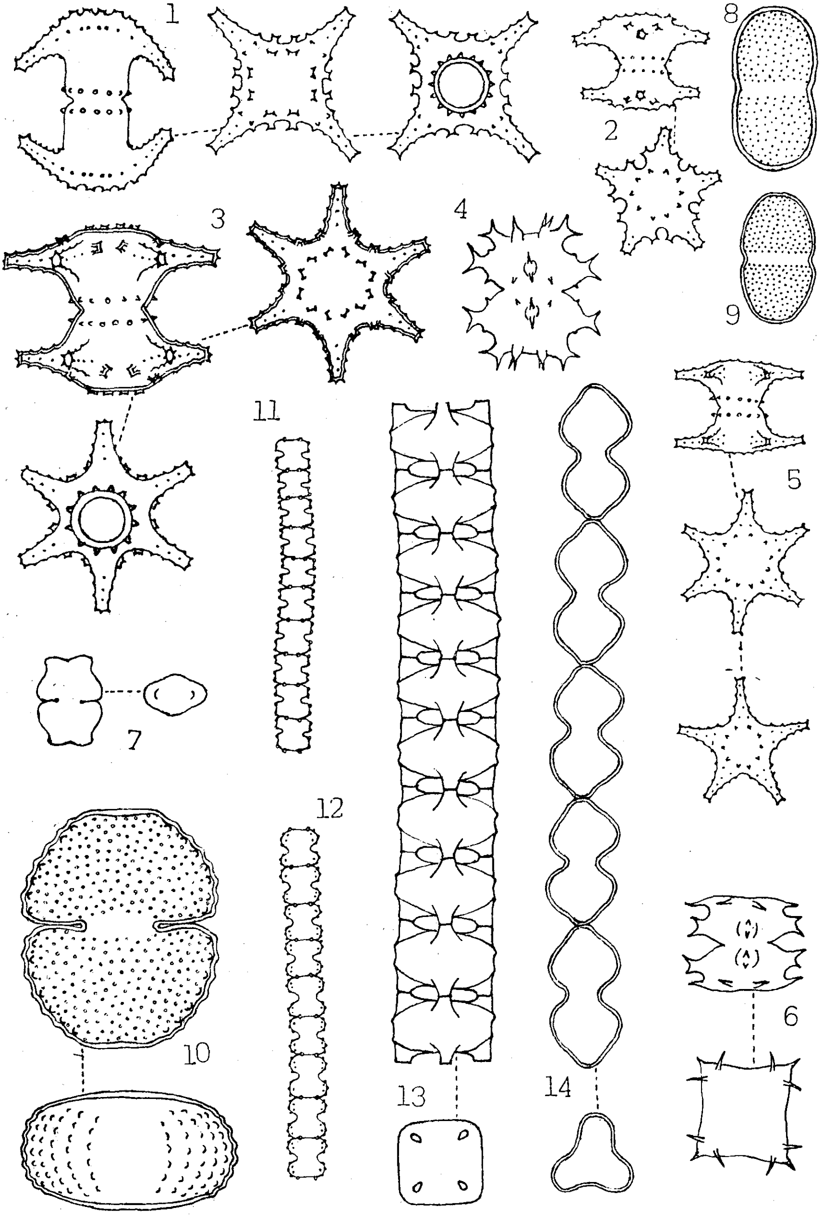

Fig. 9

Hab. 2, 3, 11.

191. ——— f. *trigona* Lund. Long. cum proc. 21μ; lat. cum proc. 23μ; isthm. 6μ. Hab. 3.

192. ——— var. *cameloides* Florin (Fig. 7-19) Long. cum proc. 22μ, sine proc. 12μ; lat. cum proc. 32μ; isthm. 6μ. Hab. 3, 6.

193. *St. unicorne* Turn. (Fig. 7-6; Pl. XV, figs. 11~12) Long. 25μ; lat. sine spin. 21μ, cum spin. 28μ; isthm. 5μ. Hab. 3.

Ventral margins of semicells are angularly inflated, each lateral angle conspicuously capitate and furnished with single rather strong, curved spine, in vertical view in the center of semicells peculiarly arranged pores are seen, they are arranged in single circle of 9, surrounding central one and three radiating series from the circle. Some specimens of this desmid display fine mucous thread radiating from the lateral angles.

194. *St. vestitum* Ralfs (Fig. 7-16) Long. 30μ; lat. cum proc. 49μ, isthm. 10μ. Hab. 2.

195. *St. zonatum* Börges. (Fig. 7-11) Long. sine proc. 17μ, cum proc. 22μ; lat. cum proc. 24μ; isthm. 6μ. Hab. 10.

Fairly tiny and simple forms.

196. **Sphaerozosma** *granulatum* Roy & Biss. (Fig. 9-12) Long. 10μ; lat. 11μ; isthm. 4μ. Hab. 3.

197. *Sph. wallichii* Jacobs. var. *anglicum* West & West (Fig. 9-11) Long. 9μ; lat. 10μ; isthm. 4μ. Hab. 11.

198. **Spondylosium** *moniliforme* Lund. (Fig. 9-14; Pl. XV, fig. 13) Long. 34μ; lat. 22μ; isthm. 7μ. Hab. 2.

199. **Desmidium** *aptogonum* Bréb. Long. 17μ; lat. 27μ; isthm. 22μ. Hab. 3.

200. *D. baileyi* (Ralfs) Nordst. f. *tetoragona* Nordst. (Fig. 9-13) Long. 16μ; lat. 22μ. Hab. 3, 5, 6, 11.

201. **Hyalotheca** *dissiliens* (Sm.) Bréb. Long. 16-18μ; lat. 23μ. Hab. 2, 3.

Fig. 9. 1. *Staurastrum rhynchoceps* Krieg. var. *ornatum* Hinode 2. *St. pinnatum* Turn. var. *subpinnatum* (Schmidle) West & West. 3. *St. pinnatum* Turn. var. *subpinnatum* (Schmidle) West & West f. *robusta* Krieg. 4. *St. forficulatum* Lund. 5. *St. asterias* Nygaard. 6. *St. contectum* Turn. var. *inevolutum* Turn. 7. *Euastrum binale* (Turp.) Ehrenb. 8. *Actinotaenium cucurbita* (Bréb.) Teiling. 9. *Actinotaenium cucurbita* var. *attenuatum* (G. S. West) Teiling. 10. *Cosmarium obtusatum* Schmidle. 11. *Sphaerozosma wallichii* Jacobs. var. *anglicum* West & West. 12. *Sph. granulatum* Roy & Biss. 13. *Desmidium baileyi* (Ralfs) Nordst. f. *tetragona* Nordst. 14. *Spondylosium moniliforme* Lund. all, ×550.

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3 (1908); **4** (1911). The Ray Society, London. ——— & CARTER, N. 1923. A monograph of the British Desmidiaceae. **5.** The Ray Society, London. WOLLE, F. 1892. Desmids of the United States and list of American pediastrums. 2 ed. Bethlehem, Pa.

Explanations of Plates XIV and XV

Plate XIV.

1. *Closterium dianae* Ehrenb. var. *pseudodianae* (Roy) Krieg. 2. *Cl. turgidum* Ehrenb. 3. *Cl. leibleinii* Kütz. var. *recurvatum* West & West . 4. *Pleurotaenium verrucosum* (Bail.) Lund. 5. *Cosmarium auriculatum* Reinsch var. *subtruncatum* Hinode. 6, 7. *C. granatum* Bréb. var. *ocellatum* West & West. 8. *Euastrum spinulosum* Delp. 9. *Pleurotaenium elatum* (Turn.) Borge. 10. *Cosmarium subprotumidum* Nordst.

Plate XV.

1. *Euastrum pectinatum* Bréb. var. *reductum* Taylor. 2. *Cosmarium dentiferum* Corda. 3. *C. synduorhabdum* Skuja. 4. *C. subnobile* Hinode. 5, 6. *C. incrassatoplicatum* Hinode. 7. *C. subcrenatum* Hantzsch. 8. *Staurastrum excavatum* West & West. 9. *St. javanicum* (Nordst.) Turn. 10. *St. gladiosum* Turn. 11, 12. *St. unicorne* Turn. 13. *Spondylosium moniliforme* Lund.

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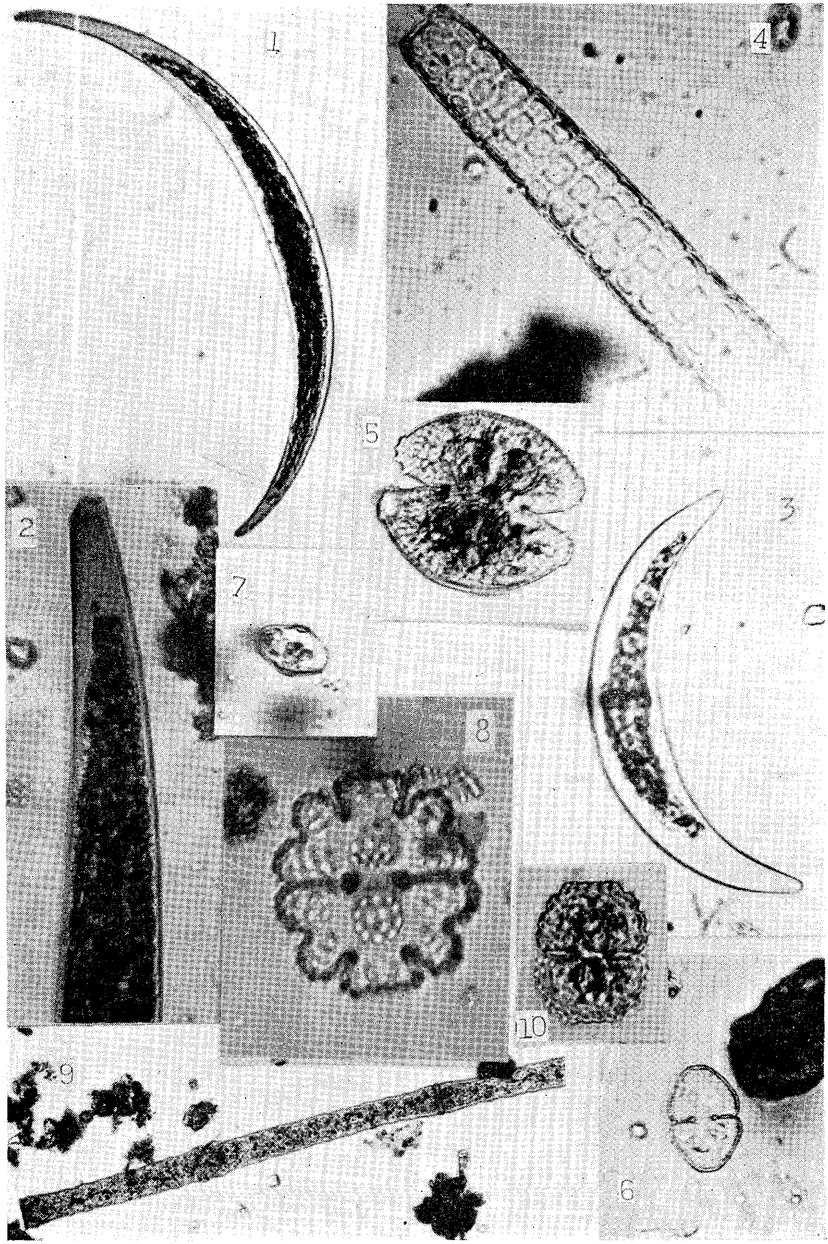
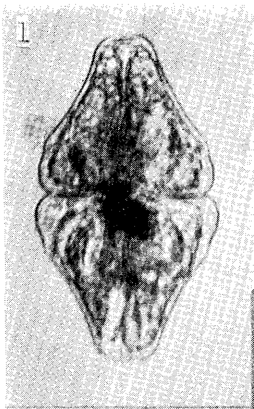
1963年8月筆者は第4回徳島県奥地学術調査に参加して，阿波郡阿波町，美馬郡脇町及び美馬町，三好郡三野町の3郡4ケ町に亘ってチリモ資料を採集することができた。この地域は吉野川北岸から讃岐山脈南斜面に亘り，徳島県の稍西よりの北方地区である。気候は幾分乾燥的で湿地等はなく，採集は専ら灌漑用の小池で行った。この中から検出し得た種類は変種品種を合して201で，大部分は広布種で，興味ある種類は少い。しかし新しく日本産に加えられるべきものも若干あり，又新種或は新変種として下記のものを記載した。

Closterium acerosum (Schrank) Ehrenb. var. *parvum*, *Pleurotaenium coronatum* (Breb.) Rabenh. var. *nodulosum* (Breb.) W. West f. *undulata*, *Euastrum evolutum* (Nordst.) West & West var. *simplicius*, *Cosmarium incrassatoplicatum*, *C. subnobile*, *C. auriculatum* Reinsch var. *subtruncatum*, *C. bengalense* (Grun.) Turn. var. *generosum*, *C. maculatum* Turn. f. *lata*, *Staurastrum cerastes* Lund. var. *delicatissimum*.



T. Hinode: Desmids from Tokushima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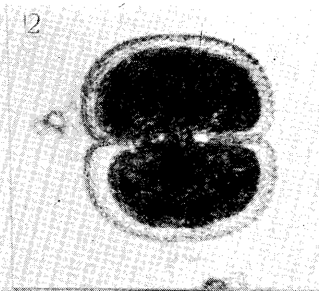
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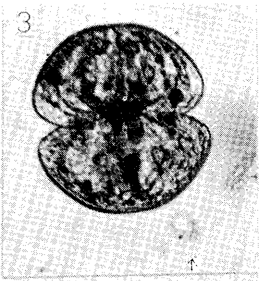
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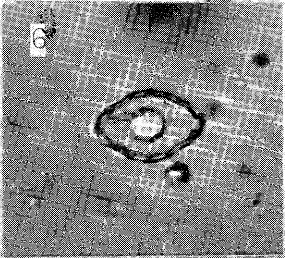
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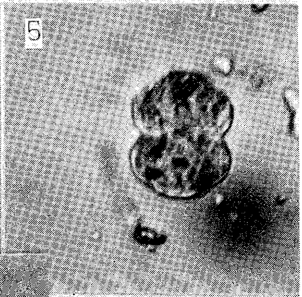
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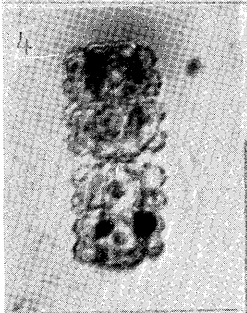
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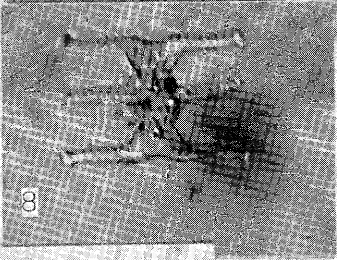
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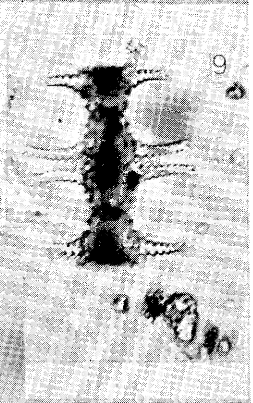
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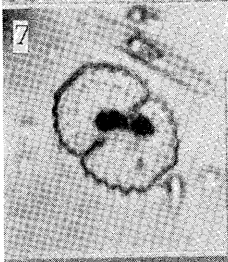
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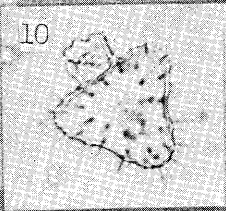
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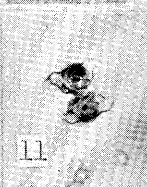
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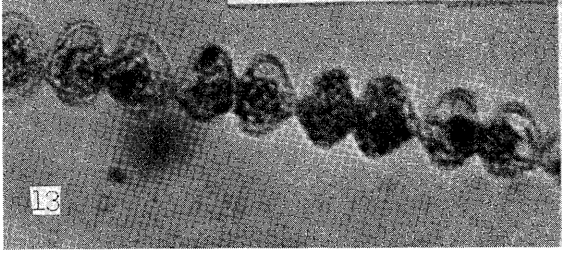
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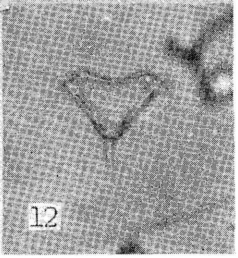
12

T. HINODE: Desmids from Tokushima